wherein:

X_1, X_2, and X_3 are independently selected from the group consisting of oxygen, methylene, monochloromethylene, dichloromethylene, monofluoromethylene, difluoromethylene, and imido;

T, W, and V are independently oxygen or sulfur;

m= 0, 1 or 2;

n= 0, 1, or 2;

p= 0, 1, or 2 ;

M= H or a pharmaceutically-acceptable inorganic or organic counterion;

D_1 =O or C;

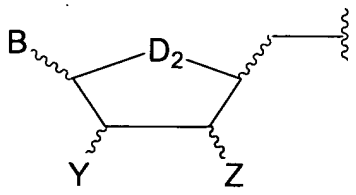
B' is a purine or a pyrimidine residue according to general formulas IV and V which is linked to the 5' position of the furanose or carbocycle via the 9- or 1- position, respectively;

Y' =H or OR_1;

Z' =H or OR_2;

A is elected from the group consisting of M, alkyl, cycloalkyl, aralkyl, aryl, and acylthioalkyl, with or without substituents or heteroatoms; or

A is a nucleoside residue which is defined as:



and which is linked to the phosphate chain via the 5' position of the furanose or carbocycle;

wherein:

Z =H or OR_3;

Y =H or OR_4;

D_2 =O or C;

B is a purine or a pyrimidine residue according to general formulas IV and V which is linked to the sugar or carbocycle via the 9- or 1- position, respectively;

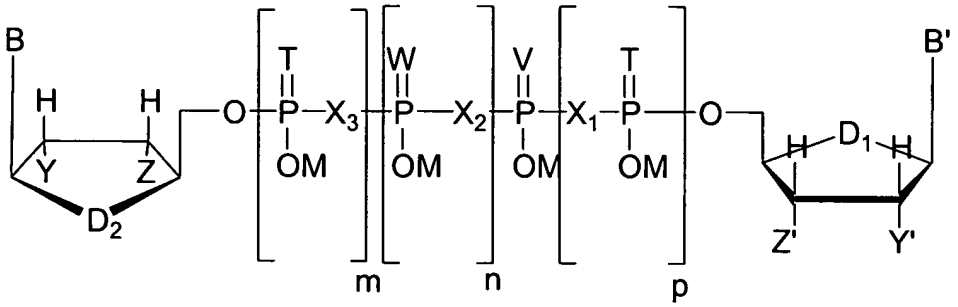
R_1, R_2, R_3, and R_4 are H, provided that at least one of the four is a residue according to general formula II or III, which is linked to the 2' or 3' furanose or carbocycle hydroxyl oxygen via a carbon atom;

wherein when D_1 and D_2 are oxygen, the furanose is in the β-configuration;

wherein compounds of general Formula I are molecules whose structures fall within the definitions of Formula Ia and Formula Ib:

Formula Ia

wherein:



X_1, X_2, and X_3=O;

T, V, and W= O;

M= H, $NH4^+$, Na^+ or other pharmaceutically-acceptable inorganic or organic counterion;

Y'= H, OH, or OR_1, where R_1 falls under the definition of general formula II;

Z'= OH or OR_2, where R_2 falls under the definition of general formula II;

Z= OH or OR_3, where R_3 falls under the definition of general formula II;

Y= H, OH, or OR_4, where R_4 falls under the definition of general formula II;

D_1 =O;

D_2 =O or C;

B and B' are purine or pyrimidine residues according to general formulas IV and V;

m and p= 0, 1 or 2;

n= 0 or 1;

such that the sum of m+n+p is from 1 to 5; or

X_1, X_2, and X_3=O;

T, V, and W= O;

M= H, NH_4^+, Na^+ or other pharmaceutically-acceptable inorganic or organic counterion ;

Y'= H, OH, or OR_1, where R_1 falls under the definition of general formula III;

Z'= OH or OR_2, where R_2 falls under the definition of general formula III;

Z= OH or OR_3, where R_3 falls under the definition of general formula III;

Y= H, OH, or OR_4, where R_4 falls under the definition of general formula III;

D_1 =O;

D_2 =O or C;

B and B' are purine or pyrimidine residues according to general formulas IV and V;

m and p= 0, 1 or 2;

n= 0 or 1;

such that the sum of m+n+p is from 1 to 5; or

X_1 and X_3=O;

X_2 is selected from the group consisting of methylene, monochloromethylene, dichloromethylene, monofluoromethylene, difluoromethylene, and imido;

T, V, and W= O;

M= H, NH_4^+, Na^+ or other pharmaceutically-acceptable inorganic or organic counterion ;

Y'= H, OH, or OR_1, where R_1 falls under the definition of general formula II;

Z'= OH or OR_2, where R_2 falls under the definition of general formula II;

Z= OH or OR_3, where R_3 falls under the definition of general formula II;

Y= H, OH, or OR_4, where R_4 falls under the definition of general formula II;

D_1 =O;

D_2 =O or C;

B and B' are purine or pyrimidine residues according to general formulas IV and V;

m and p= 0, 1 or 2;

n= 1;

such that the sum of m+n+p is from 1 to 5; or

X_1 and X_3=O;

X_2 is selected from the group consisting of methylene, monochloromethylene, dichloromethylene, monofluoromethylene, difluoromethylene, and imido;

T, V, and W= O;

M= H, NH_4^+, Na^+ or other pharmaceutically-acceptable inorganic or organic counterion;

Y'= H, OH, or OR_1, where R_1 falls under the definition of general formula III;

Z'= OH or OR_2, where R_2 falls under the definition of general formula III;

Z= OH or OR_3, where R_3 falls under the definition of general formula III;

Y= H, OH, or OR_4, where R_4 falls under the definition of general formula III;

D_1 =O;

D_2 is O or C;

B and B' are purine or pyrimidine residues according to general formulas IV and V;

m and p= 0,1 or 2;

n=1;

such that the sum of m+n+p is from 1 to 5; or

X_1 and X_3=O;

X_2 is selected from the group consisting of methylene, monochloromethylene, dichloromethylene, monofluoromethylene, difluoromethylene, and imido;

T= S;

V and W=O;

M= H, NH_4^+, Na^+ or other pharmaceutically-acceptable inorganic or organic counterion;

Y'= H, OH, or OR_1, where R_1 falls under the definition of general formula II;

Z'= OH or OR_2, where R_2 falls under the definition of general formula II;

Z= OH or OR_3, where R_3 falls under the definition of general formula II;

Y= H, OH, or OR_4, where R_4 falls under the definition of general formula II;

D_1 =O;

D_2 =O or C;

B and B' are purine or pyrimidine residues according to general formulas IV and V;

m, n, and p= 1; or

X_1 and X_3=O;

X_2 is selected from the group consisting of methylene, monochloromethylene, dichloromethylene, monofluoromethylene, difluoromethylene, and imido;

T= S;

V and W=O;

M is selected from the group consisting of H, NH_4^+, Na^+ and other pharmaceutically-acceptable inorganic or organic counterion;

Y'= H, OH, or OR_1, where R_1 falls under the definition of general formula III;

Z'= OH or OR_2, where R_2 falls under the definition of general formula III;

Z= OH or OR_3, where R_3 falls under the definition of general formula III;

Y= H, OH, or OR_4, where R_4 falls under the definition of general formula III;

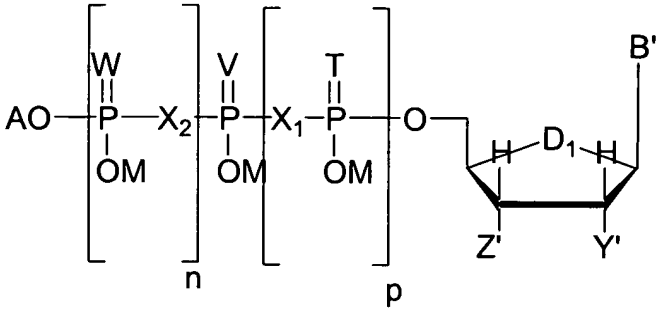
D_1 =O;

D_2 =O or C;

B and B' are purine or pyrimidine residues according to general formulas IV and V;

m, n, and p= 1;

Formula Ib



wherein:

A is elected from the group consisting of M, alkyl, cycloalkyl, aralkyl, aryl, and acylthioalkyl, with or without substituents or heteroatoms;

X_1 and X_2= O;

T, V, and W= O;

M= H, NH_4^+, Na or other pharmaceutically-acceptable inorganic or organic counterion;

Y'= H, OH, or OR_1, where R_1 falls under the definition of general formula II;

Z'= H, OH or OR_2, where R_2 falls under the definition of general formula II;

with the provision that at least one of Y' and Z' is OR_1 or OR_2;

D_1 =O or C;

B' is purine or pyrimidine residue according to general formulas IV and V;

n and p are 0, 1, or 2 such that the sum of n+p is from 1 to 3; or

A is selected from the group consisting of M, alkyl, cycloalkyl, aralkyl, aryl, and acylthioalkyl, with or without substituents or heteroatoms;

X_1 and X_2= O;

T, V, and W= O;

M is selected from the group consisting of H, NH_4^+, Na and other pharmaceutically-acceptable inorganic or organic counterion;

Y'= OR_1, where R_1 falls under the definition of general formula III;

Z'= OR_2, where R_2 falls under the definition of general formula III;

D_1 =O or C;

B' is purine or pyrimidine residue according to general formulas IV and V;

n and p are 0, 1, or 2 such that the sum of n+p is from 1 to 3; or

A is selected from the group consisting of M, alkyl, cycloalkyl, aralkyl, aryl, and acylthioalkyl, with or without substituents or heteroatoms;

X_1 and X_2= O;

T and V= O;

W=S;

M= H, NH_4^+, Na or other pharmaceutically-acceptable inorganic or organic counterion;

Y'= H, OH, or OR_1, where R_1 falls under the definition of general formula II;

Z'= H, OH or OR_2, where R_2 falls under the definition of general formula II;

with the provision that at least one of Y' and Z' is OR_1 or OR_2;

D_1 =O or C;

B' is purine or pyrimidine residue according to general formulas IV and V;

p is 0, 1, or 2 such that the sum of n+p is from 1 to 3;

n=1; or

A is selected from the group consisting of M, alkyl, cycloalkyl, aralkyl, aryl, and acylthioalkyl, with or without substituents or heteroatoms;

X_1 and X_2= O;

T and V= O;

W=S;

M is selected from the group consisting of H, NH_4^+, Na and other pharmaceutically-acceptable inorganic or organic counterion;

Y'= OR_1, where R_1 falls under the definition of general formula III;

Z'= OR_2, where R_2 falls under the definition of general formula III;

D_1 =O or C;

B' is purine or pyrimidine residue according to general formulas IV and V;

p is 0, 1, or 2 such that the sum of n+p is from 1 to 3;

n=1; or

A is selected from the group consisting of M, alkyl, cycloalkyl, aralkyl, aryl, and acylthioalkyl, with or without substituents or heteroatoms;

X_1 =O;

X_2 is selected from the group consisting of methylene, monochloromethylene, dichloromethylene, monofluoromethylene, difluoromethylene, and imido;

T, V, and W= O;

M is selected from the group consisting of H, NH_4^+, Na and other pharmaceutically-acceptable inorganic or organic counterion;

Y'= H, OH, or OR_1, where R_1 falls under the definition of general formula II;

Z'= H, OH or OR_2, where R_2 falls under the definition of general formula II;

with the provision that at least one of Y' and Z' is OR_1 or OR_2;

D_1 = O or C;

B' is purine or pyrimidine residue according to general formulas IV and V;

p is 0, 1, or 2 such that the sum of n+p is from 1 to 3;

n=1; or

A is selected from the group consisting of M, alkyl, cycloalkyl, aralkyl, aryl, and acylthioalkyl, with or without substituents or heteroatoms;

X_1 =O;

X_2 is selected from the group consisting of methylene, monochloromethylene, dichloromethylene, monofluoromethylene, difluoromethylene, and imido;

T, V, and W= O;

M is selected from the group consisting of H, NH_4^+, Na and other pharmaceutically-acceptable inorganic or organic counterion;

Y'= H, OH, or OR_1, where R_1 falls under the definition of general formula III;

Z'= H, OH or OR_2, where R_2 falls under the definition of general formula III;

D_1 = O or C;

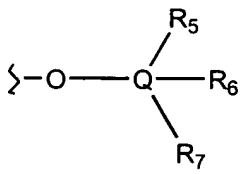
B' is purine or pyrimidine residue according to general formulas IV and V;

p is 0, 1, or 2 such that the sum of n+p is from 1 to 3;

n=1;

wherein, for compounds according to Formula Ia or Ib, where Y'= OR_1, Z'= OR_2, Z= OR_3 and/or Y= OR_4, at least one of the four is a residue which is linked directly to the corresponding 2' or 3' hydroxyl oxygen of the furanose or carbocycle via a carbon atom; wherein said residue falls within the scope of formula II or formula III:

Formula II



wherein:

O is the corresponding 2' or 3' oxygen of the furanose or carbocycle;

R_5, R_6, and R_7 are selected from the group consisting of H, an alkyl, cycloalkyl, aralkyl, aryl, substituted aralkyl, and substituted aryl, such that the moiety defined according to formula II is an ether; or

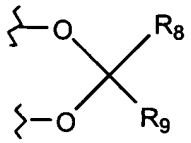
R_5 and R_6 are taken together to be oxygen or sulfur doubly bonded to Q, and R_7 is selected from the group consisting of alkyl, cycloalkyl, aralkyl, aryl, substituted aralkyl, and substituted aryl, such that the moiety defined according to formula II is an ester or thioester; or

R_5 and R_6 are taken together to be oxygen or sulfur doubly bonded to Q, and R_7 is amino or mono- or disubstituted amino, where the substituents are selected from the group consisting of alkyl, cycloalkyl, aralkyl, aryl, substituted aralkyl, and substituted aryl, such that the moiety according to formula II is a carbamate or thiocarbamate; or

R_5 and R_6 are taken together to be oxygen or sulfur doubly bonded to Q, and R_7 is selected from the group consisting of alkoxy, cycloalkoxy, aralkyloxy, aryloxy, substituted aralkyloxy, and substituted aryloxy, such that the moiety according to formula II is a carbonate or thiocarbonate; or

R_5 and R_6 are taken together to be oxygen or sulfur doubly bonded to Q and both the 2' and 3' oxygens of the furanose are directly bound to Q to form a cyclical carbonate or thiocarbonate, R_7 is not present;

Formula III



wherein:

O is the 2' and 3' oxygens of the furanose or carbocycle; and

the 2' and 3' oxygens of the furanose or carbocycle are linked by a common carbon atom to form a cyclical acetal, cyclical ketal, or cyclical orthoester; and

for cyclical acetals and ketals, R_8 and R_9 are independently selected from the group consisting of hydrogen, alkyl, cycloalkyl, aralkyl, aryl, substituted aralkyl, and substituted aryl; or are joined together to form a homocyclic or heterocyclic ring composed of 3 to 8 atoms, or

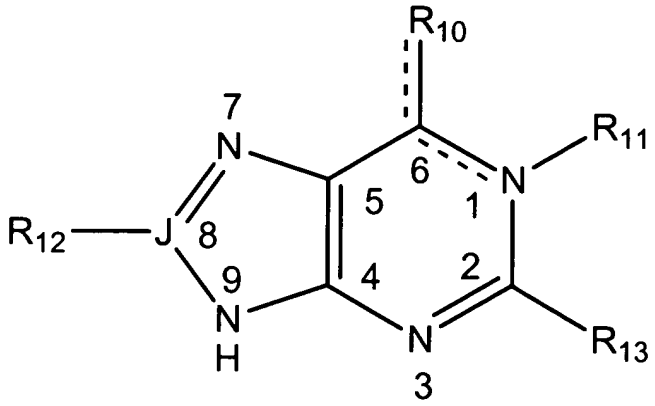
for cyclical orthoesters, R_8 is selected from the group consisting of hydrogen, alkyl, cycloalkyl, aralkyl, aryl, substituted aralkyl, and substituted aryl,

and R_9 is selected from the group consisting of alkyloxy, cycloalkyloxy, aralkyloxy, aryloxy, substituted aralkyloxy, and substituted aryloxy;

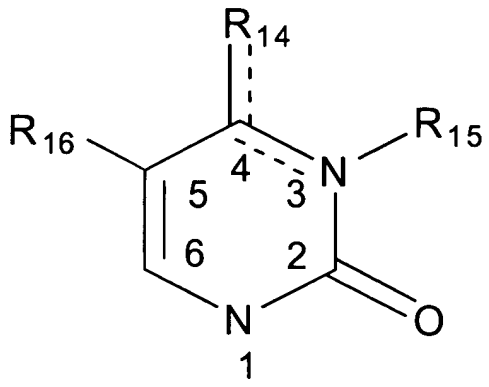
B and B' are independently a purine residue, as in formula IV, linked through the 9- position, or a pyrimidine residue, as in formula V, linked through the 1- position;

wherein, provided when D_1 and D_2 are oxygen, the ribosyl moieties are in the D- configuration;

Formula IV



Formula V



wherein:

R_{10} and R_{14} are selected from the group consisting of hydroxy, oxo, amino, mercapto, alkylthio, alkyloxy, aryloxy, alkylamino, cycloalkylamino, aralkylamino, arylamino, diaralkylamino, diarylamino, or dialkylamino, where the alkyl groups are optionally linked to form a heterocycle; or

R_{10} and R_{14} are acylamino according to Formula VI, provided that they incorporate an amino residue from the C-6 position of the purine or the C-4 position of the pyrimidine; or

when R_{10} in a purine or R_{14} in a pyrimidine has as its first atom nitrogen, R_{10} and R_{11} or R_{14} and R_{15} are taken together to form a 5-membered fused imidazole ring, optionally substituted on the etheno ring with R_5-R_9 selected from the group consisting of alkyl, cycloalkyl, aralkyl, or aryl moieties, as described above;

J is carbon or nitrogen, with the provision that when nitrogen, R_{12} is not present;

R_{11} is hydrogen, O or is absent;

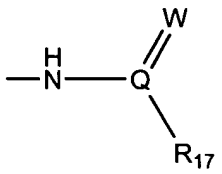
R_{12} is selected from the group consisting of hydrogen, alkyl, azido, alkylamino, arylamino, aralkylamino, alkoxy, aryloxy, aralkyloxy, alkylthio, arythio, aralkylthio, and ω-A(C_{1-6}alkyl)B- wherein A and B are selected from the group consisting of independently amino, mercapto, hydroxy and carboxyl;

R_{13} is selected from the group consisting of hydrogen, chlorine, amino, monosubstituted amino, disubstituted amino, alkylthio, arylthio, and aralkylthio, where the substituent on sulfur contains up to a maximum of 20 carbon atoms, with or without unsaturation;

R_{15} is selected from the group consisting of hydrogen, and acyl, such as acetyl, benzoyl, phenylacyl, with or without substituents;

R_{16} is selected from the group consisting of hydrogen, methyl, alkyl, halo, alkyl, alkenyl, substituted alkenyl, alkynyl, and substituted alkynyl;

Formula VI



wherein:

NH is the amino residue at the C-6 position in a purine or the amino residue at the C-4 position in a pyrimidine;

Q is a carbon atom;

W is oxygen or sulfur;

R_{17} is amino or mono- or disubstituted amino such that the moiety according to formula VI is a urea or thiourea; or

R_{17} is selected from the group consisting of alkoxy, aralkyloxy, aryloxy, substituted aralkyloxy, and substituted aryloxy, such that the moiety according to formula VI is a carbamate or thiocarbamate; or

R_{17} is selected from the group consisting of alkyl, cycloalkyl, aralkyl, and aryl, with or without substituents or heteroatoms, such that the moiety according to formula VI is an amide.

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16. (Amended) The method according to Claim 3, wherein said diseases or conditions associated with platelet aggregation are disorders or procedures characterized by thrombosis, primary arterial thrombotic complications of atherosclerotic disease, thrombotic complications of interventions of atherosclerotic disease, thrombotic complications of surgical or mechanical damage, mechanically – induced platelet activation, shunt occlusion, thrombosis secondary to vascular damage and inflammation, indications with a diffuse thrombotic/platelet consumption component, venous thrombosis, coronary arterial thrombosis, pathological effects of atherosclerosis and arteriosclerosis,

platelet aggregation and clot formation in blood and blood products during storage, chronic or acute states of hyper-aggregability, reocclusion of an artery or vein following fibrinolytic therapy, platelet adhesion associated with extracorporeal circulation, thrombotic complications associated with thrombolytic therapy, thrombotic complications associated with coronary and other angioplasty, or thrombotic complications associated with coronary artery bypass procedures.

17. (Amended) The method according to Claim 16, wherein said disorders or procedures characterized with thrombosis are unstable angina, coronary angioplasty, or myocardial infarction.

18. (Amended) The method according to Claim 16, wherein said primary arterial thrombotic complications of atherosclerosis are thrombotic stroke, peripheral vascular disease, or myocardial infarction without thrombolysis.

19. (Amended) The method according to Claim 16, wherein said thrombotic complications of interventions of atherosclerotic disease are angioplasty, endarterectomy, stent placement, coronary or other vascular graft surgery.

20. (Amended) The method according to Claim 16, wherein said thrombotic complications of surgical or mechanical damage are tissue salvage following surgical or accidental trauma, reconstructive surgery including skin flaps, or reductive surgery such as breast reduction.

21. (Amended) The method according to Claim 16, wherein said mechanically – induced platelet activation is caused by cardiopulmonary bypass resulting in microthromboembolism or storage of blood products.

22. (Amended) The method according to Claim 16, wherein said shunt occlusion is renal dialysis or plasmapheresis.

23. (Amended) The method according to Claim 16, wherein said thrombosis secondary to vascular damage and inflammation is vasculitis, arteritis, glomerulonephritis or organ graft rejection.

24. (Amended) The method according to Claim 16, wherein said indications with a diffuse thrombotic/platelet consumption component are disseminated intravascular coagulation, thrombotic thrombocytopenic purpura, hemolytic uremic syndrome, heparin-induced thrombocytopenia, or pre-eclampsia/eclampsia.

25. (Amended) The method according to Claim 16, wherein said venous thrombosis is deep vein thrombosis, veno-occlusive disease, hematological conditions, or migraine.

26. (Amended) The method according to Claim 25, wherein said hematological conditions are thrombocythemia or polycythemia.

27. (Amended) The method according to Claim 16, wherein said coronary arterial thrombosis is associated with unstable angina, coronary angioplasty or acute myocardial infarction.

28. (Amended) The method according to Claim 16, wherein pathological effects of atherosclerosis and arteriosclerosis are arteriosclerosis, acute myocardial infarction, chronic stable angina, unstable angina, transient ischemic attacks, strokes, peripheral vascular disease, arterial thrombosis, preeclampsia, embolism, restenosis or abrupt closure following angioplasty, carotid endarterectomy, or anastomosis of vascular grafts.

29. (Amended) The method according to Claim 16, wherein said chronic or acute states of hyper-aggregability is caused by DIC, septicemia, surgical or infectious shock, post-operative and post-partum trauma, cardiopulmonary bypass surgery, incompatible blood transfusion, abruptio placenta, thrombotic thrombocytopenic purpura, snake venom or immune diseases.

31. (Amended) The method according to Claim 30, wherein said fibrinolytic agent is selected from the group consisting of natural or synthetic products which directly or indirectly cause lysis of a the fibrin clot.

32. (Amended) The method according to Claim 30, wherein said fibrinolytic agent is a plasminogen activator selected from the group consisting of anistreplase, urokinase, pro-urokinase, streptokinase, tissue plasminogen activator and mutants or variants thereof, which retain plasminogen activator activity.

33. (Amended) The method according to Claim 32, wherein said variants are selected from the group consisting of variants which have been chemically modified, variants which one or more amino acids have been added, deleted or substituted and variants with one or more modified functional domains.

34. (Amended) The method according to Claim 33, wherein said modified functional domains are added, deleted or altered by combining the active site of one plasminogen activator or fibrin binding domain with another plasminogen activator or fibrin binding molecule.

THE REMARKS

The Amendment

Claims 1, 16-29 and 32-34 are amended to correct improper claim language.

No new matter is added to any of the above amendments. The Examiner is requested to enter the amendments.